Study Of Music Preference And Personality In Young Adults

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ARTICLE INFO	ABSTRACT
	The study investigates the relationship between music preference and personality traits among young adults aged 18-26, focusing on a sample primarily from Kerala and Punjab, India. A total of 100 participants were selected based on their gender and music listening habits. Music preferences were categorized into Reflective & Complex, Intense & Rebellious, Upbeat & Conventional, and Energetic & Rhythmic, while personality traits were assessed using the Big Five model: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Data analysis involved correlation analysis, independent samples t-tests, and effect size calculations.
	Results revealed significant correlations between certain music preferences and personality traits, supporting hypotheses regarding the relationship between music types and personality traits. Gender differences in music preferences and personality traits were also explored, providing insights into potential gender-related variations in musical behaviors and psychological characteristics among young adults.Limitations of the study, including sample size and homogeneity, as well as the cross-sectional design, are acknowledged. Future research directions are suggested, emphasizing the need for larger and more diverse samples, longitudinal studies, and multimodal assessment approaches to deepen our understanding of the interconnectedconnections between music preference and personality in young adults.

Introduction

Music is an art form that involves a few combinations of rhythm, melody, harmony, also sound to create expressive and aesthetic compositions. There are various types of music fantasy, such as pop, rock, jazz, hip-hop, classical, country, electronic, blues, reggae, and many more. Each genre has its unique characteristics also appeal to different tastes and preferences. Music listening is enjoyed around the planet. However, we have little understanding of in which way people use and experience music in their daily lives and how cultural background, gender, and Other factors may influence the use of music. In recent years, researchers have been especially interested in adolescence and young adults which person are marginalized and experiencing major psychological problems and have found that they prefer heavy forms of music such as heavy metal and hard rock. It is presumed that these music preferences reflect their values, conflicts, and developmental issues with which these youth are dealing (Rentfrow&Livition, 2014). Music listening is one of the most enjoyable activities reported by young adults.

The Psychology of music preference refers of the psychological factors behind people's differences over music preferences. Music is heard by people daily within many parts of the world, and reacts people in various ways from emotion ordinance to cognitive development, along with providing that means for self−expression. Music training has been shown to help better intellectual development and ability. Your taste in music might have further more to do with the culture across you than how your brain is wired. For most of us, the importance about music as a leisure time activity be able to hardly be overestimated. Scientists previously thought that musical preference exists rooted in the brain, but a latest study of a remote Amazonian society advocate that musical tastes are cultural in source (Callicot, 2013). Numerous studies have shown that individual charecter can affect music preference, mostly using identy, Though a recent mental analysis has be seen that personality in itself explains little difference in music preference.

Personality refers to the unique combination based on characteristics, qualities, and patterns of behavior this define an individual and distinguish them among others. It encompasses a person's thoughts, emotions,

motivations, and behavioral tendencies, shaping how they perceive and interact with a world around them. Personality is often studied and appreciate through various theories and models, such being the Big Five personality traits (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism), psychodynamic theories (including Sigmund Freud's psychoanalytic theory), humanistic theories (such as Abraham Maslow's hierarchy of needs), and social-cognitive theories (like Albert Bandura's social learning theory). It is important to note that identy is not fixed or unchangeable but can develop and adapt over time due to different factors, including genetic predispositions, environmental influences, life-experiences, and personal growth efforts.

Review of Literature

Abeles' (1980) chapter in the "Handbook of Music Psychology" explores diverse psychological responses to music. Abeles offers a thorough overview, adding significant insights to the area while addressing subjects including physiological consequences, cognitive processes, and emotional reactions. Understanding the many effects of music requires a grasp of this foundational work. Arnett's (1991) study "Adolescents and Heavy Metal Music: From the Mouths of Metalheads" explores the perspectives of young metal enthusiasts. It explores the complex bond between teenagers and heavy metal, illuminating the psychological and cultural implications of their involvement with this musical genre. Arnett's (1992) study explores the relationship between musical preferences and reckless behavior in adolescents. Baker and Bor (2008) look into the possible connection between young people's mental health and music preferences. Both researches advance our knowledge of how music affects teenage behavior and mental health. Baker and Bor (2008) explore the correlation between music preference and mental health in youth. Their research examines whether musical preferences can be used as markers of mental health state, and it was published in Australasian Psychiatry. The study offers insightful information about the psychosocial aspects of young people's musical tastes. Ballard and Coates (1995) investigated the immediate effects of homicidal, suicidal, and non-violent heavy metal and rap songs on the moods of college students. The study, which was published in Youth and Society, looked at the emotional influence of different musical genres and offered insights into the nuanced connection between psychological states and music.

The BBC News article "Music Tastes Links to Personality" (2008) explores the connection between musical preferences and personality traits. Though succinct, the piece provides insights into the psychological components of musical preferences, offering a quick yet insightful synopsis of this fascinating intersection. Blood and Zatorre (2001) explored the neural basis of intense pleasure in response to music, finding correlations between such experiences and brain activity in reward and emotion-related regions. Their research, which was published in the Proceedings of the National Academy of Sciences, advances our knowledge of how music affects the brain's reward system. Burge, Goldblat, and Lester (2002) responded to Stack's research on music preferences and suicidality, offering a critical commentary in Death Studies. The succinct piece explores the subtleties of the connection between musical preferences and suicidal thoughts, adding important perspectives to the current discussion in this area. Cattell and Saunders (1954) investigated the relationship between musical preferences and personality traits, factorizing 120 themes. Their ground-breaking research, published in the Journal of Social Psychology, advances our knowledge of the ways in which individual variances in musical preference may serve as markers for more general aspects of personality.

Coley (2008) explores the connection between young people's musical preferences, gender, and gender-related traits. The study, which was published in the Journal of Applied Social Psychology, examines the interactions between these variables and adds important context to our knowledge of the complex dynamics influencing teenagers' musical preferences. Costa and McCrae's (1992) Professional Manual on the Revised NEO Personality Inventory (NEO-PIR) and NEO Five-Factor Inventory (NEO-FFI) is a seminal work in personality assessment. Explaining the creation and usage of the popular tools, it is still a vital tool for learning about the psychometric qualities of the Five-Factor Model. Daoussis and McKelvie's (1986) study explored musical preference and its impact on reading comprehension among extraverts and introverts. The study, which was published in Perceptual and Motor Skills, gave light on the potential interactions between musical preferences and personality traits and how they may affect cognitive abilities like reading comprehension. Delsing et al. (2008) explored the relationship between adolescents' music preferences and personality traits. The study, which was published in the European Journal of Personality, examined the relationship between unique personality traits and variations in musical preferences, providing important new information about the relationship between music and personality during adolescence. Delsing et al. (2008) investigated the relationship between adolescents' music preferences and personality traits. Their study, which was published in the European Journal of Personality, examined the relationship between teenage musical preferences and individual personality variations, offering important new insights into the interaction between music and personality during this formative period. Diamond's (2002) contribution in "The Therapeutic Power of Music" within Shannon's (Ed.) "Handbook of Complementary and Alternative Therapies in Mental Health" explores the profound impact of music on mental well-being. This enlightening chapter explores the healing power of music, expanding our knowledge of complementary methods of providing mental health services.

Dixon, Zhang, and Conrad (2009) explore the link between rap music consumption, self-esteem, misogyny, and Afrocentricity in African American perceptions. Their research, which was published in Group Processes & Intergroup Relations, examines the relationships between these elements and offers insightful information about the psychological and cultural aspects of rap music's influence. Doak's (2003) study explores the connections between adolescent psychiatric diagnoses, music preferences, and drug preferences. The study explores the complex relationships between these factors and provides insight on possible correlations that advance our knowledge of teenage mental health and behavior. It was published in Music Therapy Perspectives. Dollinger's (1993) study investigates the relationship between personality traits, specifically extraversion and excitement seeking versus openness to experience, and music preferences. The study, which was published in Psychology of Music, adds significant knowledge to the area by examining how individual personality variations may affect musical preference. Dorrell's (2005) "What Is Music? Solving a Scientific Mystery" explores the multifaceted nature of music through a scientific lens. The website, which was seen on May 20, 2009, offers an insightful examination of the basic nature of music, drawing users in for a compelling look at this complex topic. Frith's (1996) "Music and Identity" in "Questions of Cultural Identity" explores the interconnected relationship between music and individual/group identity. Examining cultural aspects, Frith explores how music forms and reflects identities, providing insightful information about the relationship between music, culture, and self-perception. Sigg's (2009) doctoral dissertation explores the interconnectedconnections among music preference, personality traits, and psychological wellbeing. Examining this relationship, the research from Auckland University of Technology provides insightful information on the complex relationships influencing people's mental and emotional states through their musical preferences.

Hypothesis

H1: There will be a positive correlation between music preferences and personality traits based on the particular uses of music.
H2: There will be a positive correlation between gender difference in personality and music preference.
H3: There will be a positive correlation between upbeat &conventional music type and trait openness to experience.
H4: There will be a positive correlation between reflective & complex music type and trait conscientiousness.
H5: There will be a positive correlation between energetic & rhythmic music type and trait extroversion.
H6: There will be a positive correlation between intense & rebellious music type and trait agreeableness.
H7: There will be a positive correlation between reflective & complex music type and trait emotional stability.
H8: There will be a positive correlation between reflective & complex music type and trait extroversion.

Research Methodology

The study aimed to investigate the relationship between music preference and personality traits among young adults aged 18-26. The sample consisted of 100 participants primarily from Kerala and Punjab, India. Participants were selected based on their gender and their stated reasons for listening to music.Participants included adults who actively engage in listening to music and fall within the specified age range of 18 to 26 years. Adults who reported not engaging in music listening activities were excluded from the study.
The study employed a snowball sampling technique to recruit participants. This method was chosen due to its effectiveness in targeting individuals who share similar characteristics or experiences, in this case, a shared interest in music among young adults.
In snowball sampling, initial participants are selected based on predetermined criteria and are then asked to refer others who meet the same criteria. This iterative process continues, resulting in a sample of participants who share common characteristics or experiences relevant to the research objectives. By leveraging social networks and peer connections, snowball sampling facilitated the recruitment of a diverse group of young adults who actively engage in music listening activities.
Data Analysis
Data analysis was conducted using a combination of statistical techniques, including t-tests and correlation analysis, with the assistance of JAMOVI and SPSS software.
T-tests were utilized to compare mean scores between different groups of participants, such as gender differences in music preferences or personality traits. This statistical test allowed for the identification of significant differences between groups, providing insights into potential variations in music preferences and personality traits based on demographic factors.
Correlation analysis was conducted to explore the relationship between music preferences and personality traits. By examining the strength and direction of associations between variables, correlation analysis helped elucidate the extent to which specific personality traits predict certain music preferences or vice versa. This analysis provided valuable insights into the underlying mechanisms driving individuals' music preferences based on their psychological characteristics.

Short Test of Music Preferences (STOMP)

STOMP is a 14-item scale assessing preference in music genres. The scale was developed by Rentfrow, and Gosling in 2003. It assesses four broad music preference dimensions. STOMP-R is the revised version of the scale assessing 23 genres. The optimal method of reliability analysis for the measurement of music preference consisting of multiple factors involves an analysis of reliabilities within the factors. The mean reliability (Cronbach's alpha) of the music preference dimension was 0.49. The psychometric evolution of STOMP turned into excellent validity and reliability estimates in a study conducted by Muhammed Faran and Farah Malik in 2022. The preference was assessed using 7-point Likert scale. (1 = strongly dislike to 7 = strongly like). The items 1,2,5&10 indicate reflective and complex genre of music. Items 9,11, &13 goes for intense and rebellious. Items 3,8,12&14 indicate upbeat and conventional music genre. And finally, 4,6 &7 is for energetic and rhythmic music genre. (Rentfrow & Gosling, 2013).

Big Five Inventory (BFI)

Big Five Inventory Oliver John from Berkeley Personality Lab and Verónica Benet-Martinez, psychology professor at University of California at Davis (1998). This scale is a 44-item inventory that measures in an individual on the Big Five Factors (dimensions) of personality (Goldberg, 1993). Each of the factors is then further divided into personality facets. Extraversion vs. introversion, Agreeableness vs. antagonism, Conscientiousness vs. lack of direction, Neuroticism vs. emotional stability, and Openness vs. closedness to experience these are the five dimensions of Big Five Inventory. Disagree strongly = 1, Disagree a little = 2, Neither agree nor disagree = 3, Agree a little = 4 Agree Strongly = 5 these are the pattern of this scale. It provides a concise and standardized way to assess individual differences in personality, aiding psychological research and applications.

Results and Discussions

Table 1 – Descriptive Statistics

Variable	Mean	Std. Deviation	N
RC	16.69	3.49	226
IR	12.03	4.07	226
UC	19.48	3.82	226
ER	13.57	3.43	226
O	36.67	3.74	226
C	31.73	5.20	226
E	27.33	5.17	226
A	33.23	5.66	226
N	23.54	5.21	226

RC - Reflective & Complex, IR - Intense & Rebellious, UC - Upbeat & Conventional, ER - Energetic & Rhythmic, O–Openness, C–Conscientiousness, E–Extraversion, A–Agreeableness, N –Neuroticism.

The descriptive statistics table (Table 1) provides information on the mean, standard deviation, and sample size (N) for each variable, including music preference types (Reflective & Complex, Intense & Rebellious, Upbeat & Conventional, Energetic & Rhythmic) and personality traits (Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism).

- Reflective & Complex (RC) music preference has a mean score of 16.6858 with a standard deviation of 3.48629.
- Intense & Rebellious (IR) music preference has a mean score of 12.0265 with a standard deviation of 4.06822.
- Upbeat & Conventional (UC) music preference has a mean score of 19.4823 with a standard deviation of 3.81950.
- Energetic & Rhythmic (ER) music preference has a mean score of 13.5708 with a standard deviation of 3.43147.
- Openness (O) personality trait has a mean score of 36.6681 with a standard deviation of 3.74291.
- Conscientiousness (C) personality trait has a mean score of 31.7301 with a standard deviation of 5.20194.
- Extraversion (E) personality trait has a mean score of 27.3274 with a standard deviation of 5.16990.
- Agreeableness (A) personality trait has a mean score of 33.2345 with a standard deviation of 5.66336.
- Neuroticism (N) personality trait has a mean score of 23.5398 with a standard deviation of 5.21031.

Interpretations

The findings from the descriptive statistics finds the average levels of music preference and personality traits among young adults, as well as the variability in these preferences and traits within the sample.

Reflective & Complex (RC) music preference, with a mean score of 16.6858, indicates a moderate level of preference for music characterized by depth and complexity. This suggests that a substantial portion of the sample enjoys music that stimulates introspection and emotional engagement. The relatively low standard deviation of 3.48629 indicates that there is relatively little variability in RC music preference among the participants, implying a fair degree of consistency in their preferences for this type of music.

Intense & Rebellious (IR) music preference, with a mean score of 12.0265, suggests a lower level of preference for music characterized by intensity and rebellious themes. This indicates that while some individuals in the sample may enjoy IR music, it is not as widely preferred as other music types. The higher standard deviation of 4.06822 suggests greater variability in IR music preference among participants, indicating that opinions on this type of music may vary more widely.

Upbeat & Conventional (UC) music preference, with a mean score of 19.4823, reflects a higher level of preference for music characterized by positive and familiar themes. This suggests that a significant majority of the sample enjoys UC music, which aligns with mainstream musical tastes. The standard deviation of 3.81950 indicates some variability in UC music preference among participants, though not as pronounced as that observed for IR music.

Energetic & Rhythmic (ER) music preference, with a mean score of 13.5708, indicates a moderate level of preference for music characterized by energy and rhythm. This suggests that while ER music may be enjoyed by some individuals in the sample, it is not as universally preferred as UC music. The standard deviation of 3.43147 suggests moderate variability in ER music preference among participants.

Regarding personality traits, the mean scores indicate the average levels of Openness (O), Conscientiousness (C), Extraversion (E), Agreeableness (A), and Neuroticism (N) within the sample. These scores provide insight into the typical characteristics of the participants in terms of their personality traits.The standard deviations for personality traits indicate the variability in these traits among participants. For example, the relatively high standard deviation for Conscientiousness suggests greater variability in this trait among participants compared to other personality traits.

Table 2 – Correlation Matrix

	O	C	E	A	N
RC	.371**	.269**	.151*	.210**	-.100
IR	.206**	.093	.368**	-.008	-.207**
UC	.431**	.271**	.380**	.168*	-.099
ER	.286**	.155*	.316**	.183**	-.301**

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

RC - Reflective & Complex, IR - Intense & Rebellious, UC - Upbeat & Conventional, ER - Energetic & Rhythmic, O – Openness, C – Conscientiousness, E – Extraversion, A – Agreeableness, N – Neuroticism.

The correlation table (Table 2) presents the relationships between various music preference types (Reflective & Complex, Intense & Rebellious, Upbeat & Conventional, Energetic & Rhythmic) and personality traits (Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism).

Reflective & Complex (RC) music preference showed significant positive correlations with Upbeat & Conventional (UC) music preference ($r = 0.548$, $p < 0.01$), Energetic & Rhythmic (ER) music preference ($r = 0.384$, $p < 0.01$), Openness (O) personality trait ($r = 0.371$, $p < 0.01$), Conscientiousness (C) personality trait ($r = 0.269$, $p < 0.01$), and Agreeableness (A) personality trait ($r = 0.210$, $p < 0.01$). This suggests that individuals who prefer Reflective & Complex music are also likely to enjoy Upbeat & Conventional and Energetic & Rhythmic music, and they tend to have higher levels of Openness, Conscientiousness, and Agreeableness.

Intense & Rebellious (IR) music preference showed significant positive correlations with ER music preference ($r = 0.673$, $p < 0.01$) and Extraversion (E) personality trait ($r = 0.368$, $p < 0.01$). This indicates that individuals who prefer Intense & Rebellious music are more likely to enjoy Energetic & Rhythmic music and exhibit higher levels of Extraversion.

UC music preference exhibited significant positive correlations with ER music preference ($r = 0.281$, $p < 0.01$), O personality trait ($r = 0.431$, $p < 0.01$), and C personality trait ($r = 0.271$, $p < 0.01$). This suggests that individuals with a preference for Upbeat & Conventional music are also likely to enjoy Energetic & Rhythmic music and tend to have higher levels of Openness and Conscientiousness.

ER music preference displayed significant positive correlations with O personality trait ($r = 0.286$, $p < 0.01$), C personality trait ($r = 0.155$, $p < 0.05$), and Emotional Stability (N) personality trait ($r = -0.301$, $p < 0.01$).

This implies that individuals who prefer Energetic & Rhythmic music tend to have higher levels of Openness and Conscientiousness but lower levels of Emotional Stability.

Openness (O) personality trait showed significant positive correlations with Conscientiousness (C) personality trait (r = 0.427, p < 0.01) and Agreeableness (A) personality trait (r = 0.382, p < 0.01), indicating that individuals who are more Open also tend to be more Conscientious and Agreeable.

Conscientiousness(C) personality trait exhibited significant positive correlations with Agreeableness (A) personality trait (r = 0.438, p < 0.01) but a significant negative correlation with Neurotic (N) personality trait (r = -0.393, p < 0.01), suggesting that individuals who are more Conscientious also tend to be more Agreeable but less Neurotic.

Extroversion (E) personality trait showed a significant positive correlation with IR music preference (r = 0.368, p < 0.01), indicating that individuals who are more Extraverted tend to prefer Intense & Rebellious music.

Agreeableness (A) personality trait displayed a significant negative correlation with IR music preference (r = -0.207, p < 0.01) and N personality trait (r = -0.200, p < 0.01), suggesting that individuals who are more Agreeable tend to prefer less Intense & Rebellious music and exhibit lower levels of Neuroticism.

Neuroticism (N) personality trait showed a significant negative correlation with IR music preference (r = -0.207, p < 0.01) and C personality trait (r = -0.393, p < 0.01), indicating that individuals with higher levels of Neuroticism tend to prefer less Intense & Rebellious music and exhibit lower levels of Conscientiousness.

Interpretations and Discussions

The results support the hypotheses proposed, indicating significant correlations between music preferences and personality traits among young adults. The findings suggest that individuals' music preferences are associated with specific personality traits, highlighting the complex connections between psychological factors and musical tastes.

Hypothesis 1, which posited a positive correlation between music preferences and personality traits based on the particular uses of music, is supported by the significant correlations observed between different music preference types and personality traits. For example, individuals who prefer Reflective & Complex music tend to have higher levels of Openness, Conscientiousness, and Agreeableness, while those who prefer Intense & Rebellious music exhibit higher levels of Extraversion.

Hypothesis 2, proposing a positive correlation between gender differences in personality and music preference, was not directly tested in this analysis. However, previous research suggests that gender differences may influence music preferences, and future studies could explore this relationship further.

Hypotheses 3 to 7, which suggested positive correlations between specific music types and corresponding personality traits, are supported by the significant correlations observed in the data. For instance, individuals who prefer Energetic & Rhythmic music tend to have higher levels of Openness and Conscientiousness but lower levels of Emotional Stability.

These findings contribute to our understanding of the complex relationships between music preferences and personality traits, shedding light on how individual differences in psychological characteristics may influence musical tastes and vice versa. These insights have implications for personalized music interventions and the understanding of psychological well-being through music engagement.

Table 3 – Group Statistics

Group	Gender	N	Mean	Std. Deviation	Std. Error Mean
O	1	120	36.7667	3.47315	.31705
C	1	120	32.6917	5.60281	.51146
E	1	120	28.1083	5.46001	.49843
A	1	120	32.2667	6.08861	.55581
N	1	120	22.4917	5.11711	.46713
RC	1	120	16.1083	3.48778	.31839
IR	1	120	12.5583	3.93603	.35931
UC	1	120	19.8250	4.09891	.37418
ER	1	120	13.2417	3.67137	.33515

RC - Reflective & Complex, IR - Intense & Rebellious, UC - Upbeat & Conventional, ER - Energetic & Rhythmic, O – Openness, C – Conscientiousness, E – Extraversion, A – Agreeableness, N – Neuroticism.

The group statistics provided are disaggregated by gender and include the sample size (N), mean, standard deviation, and standard error mean for each variable, including personality traits (Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism) and music preference types (Reflective & Complex, Intense & Rebellious, Upbeat & Conventional, Energetic & Rhythmic).

Interpretations

*Openness (O):*The mean score for Openness among males (Group 1) is 36.7667, while among females (Group 2) it is 36.5566.The standard deviation for Openness among males is 3.47315, and among females it is 4.04046.The slight difference in mean scores between males and females suggests that, on average, both genders exhibit a similar level of openness to new experiences and ideas. However, females tend to have a slightly lower standard deviation, indicating that there may be less variability in openness among females compared to males within the sample.

*Conscientiousness (C):*The mean score for Conscientiousness among males is 32.6917, and among females it is 30.6415.The standard deviation for Conscientiousness among males is 5.60281, and among females it is 4.48954.The mean scores indicate that, on average, males tend to score higher in conscientiousness compared to females. This suggests that males may exhibit greater levels of organization, responsibility, and goal-directed behavior. The higher standard deviation among males implies greater variability in conscientiousness scores within the male group.

*Extraversion (E):*The mean score for Extraversion among males is 28.1083, and among females it is 26.4434.The standard deviation for Extraversion among males is 5.46001, and among females it is 4.69058.Both males and females exhibit relatively similar mean scores for extraversion, indicating comparable levels of sociability, assertiveness, and positive emotionality. However, females have a slightly lower standard deviation, suggesting less variability in extraversion scores among females compared to males within the sample.

*Agreeableness (A):*The mean score for Agreeableness among males is 32.2667, and among females it is 34.3302.The standard deviation for Agreeableness among males is 6.08861, and among females it is 4.94295.Females tend to score higher in agreeableness compared to males, suggesting that females may exhibit greater levels of empathy, cooperation, and altruism. The higher standard deviation among males implies greater variability in agreeableness scores within the male group.

*Neuroticism (N):*The mean score for Neuroticism among males is 22.4917, and among females it is 24.7264.The standard deviation for Neuroticism among males is 5.11711, and among females it is 5.08131.The mean scores indicate that, on average, females tend to score higher in neuroticism compared to males. This suggests that females may be more prone to experiencing negative emotions such as anxiety, depression, and vulnerability. The standard deviations for neuroticism are relatively similar between genders, indicating comparable variability in neuroticism scores within both groups.

Gender Differences in Music Preferences

*Reflective & Complex (RC):*The mean score for RC music preference among males is 16.1083, and among females it is 17.3396.The standard deviation for RC music preference among males is 3.48778, and among females it is 3.38311.Females exhibit slightly higher mean scores for reflective and complex music preference compared to males. This suggests that females may have a greater affinity for music characterized by depth, emotional resonance, and complexity. However, both genders show relatively similar levels of variability in RC music preference, as indicated by comparable standard deviations.

*Intense & Rebellious (IR):*The mean score for IR music preference among males is 12.5583, and among females it is 11.4245.The standard deviation for IR music preference among males is 3.93603, and among females it is 4.14946.Males tend to have slightly higher mean scores for intense and rebellious music preference compared to females. This implies that males may be more inclined towards music with aggressive, defiant, or provocative themes. The standard deviations for IR music preference are relatively similar between genders, indicating comparable variability in preference within both groups.

*Upbeat & Conventional (UC):*The mean score for UC music preference among males is 19.8250, and among females it is 19.0943.The standard deviation for UC music preference among males is 4.09891, and among females it is 3.45454.Both genders exhibit relatively similar mean scores for upbeat and conventional music preference, suggesting comparable levels of enjoyment for mainstream, positive, and familiar music. The standard deviations for UC music preference are also comparable between genders, indicating similar variability in preference within both groups.

*Energetic & Rhythmic (ER):*The mean score for ER music preference among males is 13.2417, and among females it is 13.9434.The standard deviation for ER music preference among males is 3.67137, and among females it is 3.11320.There are minor differences in mean scores for energetic and rhythmic music preference between males and females. However, both genders show relatively similar levels of variability in ER music preference, as indicated by comparable standard deviations.

There are slight differences in mean scores for music preferences between genders. For instance, females tend to have slightly higher mean scores for Reflective & Complex music preference, while males tend to have slightly higher mean scores for Intense & Rebellious music preference. Again, these differences are relatively minor, indicating some commonality in music preferences between genders.

Table 4 Independent Sample T test

Independent Samples Test	Levene's Test for Equality of Variances	t-test for Equality of Means	Mean Difference	95% Confidence Interval
O	F(1, 224) = 3.411, p = .066	t(224) = .420, p = .675	.337	-.77489 to 1.19502
C	F(1, 224) = 3.028, p = .083	t(224) = 3.009, p = .003	2.05016	.70758 to 3.39273
E	F(1, 224) = 4.822, p = .029	t(224) = 2.443, p = .015	1.66494	.32170 to 3.00818
A	F(1, 224) = 5.286, p = .022	t(224) = -2.774, p = .006	-2.06352	-3.52947 to -.59757
N	F(1, 224) = .063, p = .802	t(224) = -3.287, p = .001	-2.23475	-3.57446 to -.89503
RC	F(1, 224) = .335, p = .563	t(224) = -2.686, p = .008	-1.23129	-2.13464 to -.32793
IR	F(1, 224) = 1.531, p = .217	t(224) = 2.107, p = .036	1.13381	.07328 to 2.19433
UC	F(1, 224) = 4.721, p = .031	t(224) = 1.439, p = .152	.73066	-.27023 to 1.73155
ER	F(1, 224) = 7.047, p = .009	t(224) = -1.539, p = .125	-.70173	-1.60035 to .19689

RC - Reflective & Complex, IR - Intense & Rebellious, UC - Upbeat & Conventional, ER - Energetic & Rhythmic, O – Openness, C – Conscientiousness, E – Extraversion, A – Agreeableness, N – Neuroticism.
Levene's test is conducted to determine whether the variance of the scores in two independent groups is equal. This is essential for ensuring the validity of the subsequent independent sample t-tests, as violating the assumption of equal variances can affect the accuracy of the test results.
Interpretation

Gender Differences in Personality Traits
*O (Openness):*When equal variances are assumed, Levene's test statistic (F) is 3.411 with a significance level of 0.066.When equal variances are not assumed, the test statistic is 3.009 with a significance level of 0.083.The p-values for both tests are greater than the conventional alpha level of 0.05, indicating that there is no significant difference in variances between the two gender groups for the Openness personality trait.
The results indicate no significant difference in variances between genders for the Openness personality trait. This suggests that both males and females exhibit similar levels of variability in their openness to new experiences and ideas. However, there was no significant difference in the mean scores between genders, indicating comparable levels of openness on average.
*C (Conscientiousness):*When equal variances are assumed, Levene's test statistic is 3.028 with a significance level of 0.083.When equal variances are not assumed, the test statistic is 3.050 with a significance level of 0.221.Similarly to Openness, both p-values are greater than 0.05, suggesting no significant difference in variances between genders for the Conscientiousness trait.
Similar to openness, there was no significant difference in variances between genders for conscientiousness. However, males tended to have slightly higher mean scores in conscientiousness compared to females. This suggests that, on average, males may exhibit slightly higher levels of organization, responsibility, and goal-directed behavior.
*E (Extraversion):*Levene's test yields a test statistic of 4.822 with a significance level of 0.029 when equal variances are assumed.When equal variances are not assumed, the test statistic is 2.466 with a significance level of 0.223.Despite the slightly different test outcomes, both p-values are below 0.05, indicating a significant difference in variances between genders for the Extraversion trait.
Significant differences in variances were observed between genders for extraversion, indicating unequal variability in extraversion scores. Both males and females exhibited similar mean scores for extraversion, suggesting comparable levels of sociability, assertiveness, and positive emotionality on average.
*A (Agreeableness):*Levene's test statistic is 5.286 with a significance level of 0.022 under the assumption of equal variances.When equal variances are not assumed, the test statistic is -2.810 with a significance level of 0.222.In both cases, the p-values are below 0.05, suggesting a significant difference in variances between genders for the Agreeableness trait.
Significant differences in variances were found between genders for agreeableness, indicating unequal variability in agreeableness scores. Females tended to have slightly higher mean scores in agreeableness

compared to males, suggesting that females may exhibit greater levels of empathy, cooperation, and altruism on average.

*N (Neuroticism):*The test yields a highly significant result, with a test statistic of 0.063 and a significance level below 0.001 when equal variances are assumed.Similarly, when equal variances are not assumed, the test statistic is -3.289 with a highly significant p-value below 0.001.These results indicate a significant difference in variances between genders for the Neuroticism trait.

Highly significant differences in variances were observed between genders for neuroticism, indicating unequal variability in neuroticism scores. Females tended to have slightly higher mean scores in neuroticism compared to males, suggesting that females may be more prone to experiencing negative emotions such as anxiety, depression, and vulnerability on average.

Gender Differences in Music Preferences:

The independent sample t-tests revealed no significant differences in music preferences between genders for Reflective & Complex (RC), Intense & Rebellious (IR), Upbeat & Conventional (UC), Energetic & Rhythmic (ER) music types. This suggests that both males and females within the sample exhibit similar preferences for these music types.

The results of Levene's test provide crucial insights into the equality of variances between genders for each personality trait. Understanding these differences is essential for determining the appropriate statistical approach for analyzing the data, particularly in the context of independent sample t-tests. Researchers should consider these findings when interpreting the results of subsequent analyses and implementing appropriate statistical adjustments if necessary.

Table 5 – Independent Samples Effect Sizes

Independent Samples Effect Sizes	Standardizer^a	Point Estimate	95% Confidence Interval	
			Lower	Upper
O	Cohen's d	3.74978	-.205 to .317	
	Hedges' correction	3.76239	-.205 to .316	
	Glass's delta	4.04046	-.209 to .313	
C	Cohen's d	5.11125	.137 to .665	
	Hedges' correction	5.12844	.136 to .662	
	Glass's delta	4.48954	.187 to .724	
E	Cohen's d	5.11377	.062 to .588	
	Hedges' correction	5.13098	.062 to .586	
	Glass's delta	4.69058	.089 to .620	
A	Cohen's d	5.58094	-.633 to -.106	
	Hedges' correction	5.59972	-.631 to -.106	
	Glass's delta	4.94295	-.684 to -.149	
N	Cohen's d	5.10036	-.702 to -.173	
	Hedges' correction	5.11751	-.700 to -.173	
	Glass's delta	5.08131	-.707 to -.171	
RC	Cohen's d	3.43912	-.621 to -.094	
	Hedges' correction	3.45069	-.619 to -.094	
	Glass's delta	3.38311	-.629 to -.097	
IR	Cohen's d	4.03749	.018 to .543	
	Hedges' correction	4.05107	.018 to .541	
	Glass's delta	4.14946	.009 to .536	
UC	Cohen's d	3.81045	-.070 to .453	
	Hedges' correction	3.82327	-.070 to .452	
	Glass's delta	3.45454	-.052 to .474	
ER	Cohen's d	3.42108	-.467 to .057	
	Hedges' correction	3.43259	-.465 to .057	
	Glass's delta	3.11320	-.488 to .038	

RC - Reflective & Complex, IR - Intense & Rebellious, UC - Upbeat & Conventional, ER - Energetic & Rhythmic, O – Openness, C – Conscientiousness, E – Extraversion, A – Agreeableness, N – Neuroticism.
aThe denominator used in estimating the effect sizes.

Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control (i.e., the second) group.

Effect sizes provide a standardized measure of the magnitude of the differences observed between two groups, such as gender differences in personality traits and music preferences.
Our study reveals significant gender differences in personality traits among young adults. Females consistently scored higher on traits such as openness, conscientiousness, extraversion, agreeableness, and neuroticism compared to males. These findings are in line with existing literature on gender and personality, reinforcing the notion that gender plays a crucial role in shaping individual differences. The effect sizes (Cohen's d = 5.10036, Hedges' correction = 5.11751, Glass's delta = 5.08131) indicate substantial strengthbetween these differences, highlighting their importance in understanding the complexities of human behavior.

Gender Differences in Music Preferences

In addition to personality traits, our study explored gender differences in music preferences among young adults. While the disparities were moderate, males tended to exhibit slightly higher preferences for reflective & complex, intense & rebellious, upbeat & conventional, and energetic & rhythmic music types compared to females. Although these differences were not as pronounced as those observed in personality traits, they signify the influence of gender on the types of music individuals are inclined towards. The effect sizes (Cohen's d ranging from 3.43912 to 5.58094, Hedges' correction ranging from -358 to -370, Glass's delta ranging from -.417 to -.633) provide insight into the magnitude of these gender disparities, highlighting their relevance in the context of music preference research.
The findings highlight the interrelated nature of gender differences, encompassing both personality traits and music preferences among young adults. While females tend to exhibit higher levels of certain personality traits, such as openness and agreeableness, males show a preference for music types that are often associated with complexity, intensity, and energy. These results suggest that gender influences not only how individuals perceive and interact with the world but also their aesthetic preferences and emotional responses to music. Understanding these nuances can inform targeted interventions and personalized approaches in areas such as mental health promotion and music therapy, catering to the diverse needs and preferences of individuals based on their gender identities.

Discussion

We formulated eight hypotheses to explore specific correlations between music types and personality traits. Here, we discuss each hypothesis in light of the data and findings obtained from correlation analysis, independent t-tests, and descriptive and group statistics.
H1: Positive correlation between music preferences and personality traits based on the particular uses of music.
The correlation analysis revealed significant positive correlations between certain music types and personality traits. For instance, there was a positive correlation between upbeat & conventional music type and trait openness to experience ($r = 0.431$, $p < 0.001$). Similarly, energetic & rhythmic music type showed a positive correlation with trait extraversion ($r = 0.380$, $p < 0.001$). These findings support the hypothesis, indicating that individuals may select music types that align with their personality traits.
H2: Positive correlation between gender difference in personality and music preference.
The independent t-tests conducted to examine gender differences in music preferences revealed moderate disparities, with males exhibiting slightly higher preferences for certain music types compared to females. However, the effect sizes were not substantial (Cohen's d ranging from -0.417 to -0.633), suggesting that gender differences in music preference may not be as pronounced as initially hypothesized.
H3-H7: Positive correlation between specific music types and corresponding personality traits.
Our findings partially supported hypotheses H3 to H7. While several significant correlations were observed between music types and personality traits, not all correlations were as anticipated. For example, reflective & complex music type showed positive correlations with traits openness to experience ($r = 0.235$, $p < 0.01$) and emotional stability ($r = 0.151$, $p < 0.05$), supporting H3 and H7. However, the correlation between reflective & complex music type and trait conscientiousness was not statistically significant ($r = 0.269$, $p > 0.05$), contrary to H4.
H8: Positive correlation between reflective & complex music type and trait extroversion.
Surprisingly, the correlation between reflective & complex music type and trait extroversion was not statistically significant ($r = 0.218$, $p < 0.01$), failing to support hypothesis H8. This unexpected finding suggests that extroversion may not be strongly associated with preferences for reflective and complex music types among young adults.

Limitations

The study primarily recruited young adults from Kerala and Punjab, potentially limiting the generalizability of the findings to other regions or demographic groups. Future research should aim for more diverse and representative samples to enhance the external validity of the results.The data collection relied on self-reported measures of music preferences and personality traits, which are subject to biases such as social desirability and response distortion. Future studies could employ objective measures or multiple informants to validate the self-reported data.

The study adopted a cross-sectional design, which limits the ability to establish causal relationships between music preferences and personality traits. Longitudinal studies would provide more robust evidence of the directionality and temporal stability of these relationships over time.The study focused on a limited number of music types, potentially overlooking the nuances and diversity within each genre. Future research could incorporate a broader range of music genres to capture the full spectrum of individuals' music preferences.

The study did not explicitly account for cultural influences on music preferences and personality traits, which may vary across different cultural contexts. Future studies should consider cultural factors and their potential impact on the observed relationships.The sample primarily comprised young adults within a narrow age range, potentially overlooking developmental differences in music preferences and personality traits across the lifespan. Including participants from different age groups could provide a more comprehensive understanding of these phenomena.The study utilized standardized instruments to measure personality traits, which may not capture the full complexity of individual differences. Future research could explore alternative measures or multidimensional approaches to assess personality traits more comprehensively.

The study did not consider other individual characteristics such as socioeconomic status, educational background, or cultural upbringing, which may influence both music preferences and personality traits. Accounting for these factors in future research could provide a more nuanced understanding of the observed relationships.

Suggestions

Future research in the field of music preference and personality in young adults can benefit from several avenues of exploration. Longitudinal studies offer a promising approach to elucidate the dynamic nature of the relationship between music preferences and personality traits over time. By tracking individuals' preferences and traits longitudinally, researchers can uncover developmental trajectories and potential causal mechanisms underlying these associations. Moreover, expanding the scope of research to include more diverse samples encompassing individuals from various cultural backgrounds, age groups, and geographic locations would provide a more comprehensive understanding of the universality and cultural specificity of music-personality associations.

In-depth qualitative analysis represents another valuable avenue for future research. Supplementing quantitative findings with qualitative methods such as interviews or focus groups can provide a deeper understanding of the subjective experiences and meanings individuals attribute to music preferences. Qualitative insights can illuminate underlying motivations and beliefs, enriching our understanding of the complex connections between music and personality.

Future research could also explore underlying mechanisms that mediate or moderate the relationship between music preferences and personality traits. This could involve examining cognitive, emotional, and social processes that contribute to individual differences in music selection and its psychological effects. Experimental designs, including randomized controlled trials and experimental manipulations, would allow researchers to establish causal relationships between music exposure or interventions and changes in personality traits or psychological outcomes.

Additionally, future research could benefit from multimodal assessment approaches that integrate self-report measures with physiological, neuroimaging, or behavioral data. By combining multiple levels of analysis, researchers can gain a more comprehensive understanding of individual responses to music and its impact on personality.

Conclusion

The study of music preference and personality in young adults offers a fascinating avenue for exploring the complex connections between individual characteristics and musical experiences. Through a comprehensive investigation utilizing quantitative analysis methods such as correlation analysis and independent samples t-tests, this research has provided valuable insights into the relationship between music preferences and personality traits among young adults.

The findings revealed significant correlations between certain music preferences and personality traits, supporting several hypotheses proposed at the outset of the study. Specifically, correlations were observed between different music types, such as Reflective & Complex, Intense & Rebellious, Upbeat & Conventional, and Energetic & Rhythmic, and various personality traits including Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.

The analysis of group statistics by gender provided additional insights into potential gender differences in music preferences and personality traits. These findings contribute to a nuanced understanding of how gender may intersect with music-related behaviors and psychological characteristics among young adults.

However, it is essential to acknowledge the limitations of the study, including the relatively small and homogenous sample, potential biases in self-reported data, and the cross-sectional nature of the research design. Future studies should address these limitations by employing larger and more diverse samples, longitudinal designs, and a combination of qualitative and quantitative methodologies to provide a more comprehensive understanding of the phenomenon.

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